

### REMARKS

Reconsideration of all grounds of objection and rejection, and allowance of the pending claims are respectfully requested in view of the above amendments and the following remarks. Claims 1-4 and 6-26, as amended, remain pending herein. Claim 5 has been canceled without prejudice or disclaimer.

At the outset, Applicants note with appreciation the indication in the Office Action that claims 8, 9, 21 and 22 recite allowable subject matter.

I. Objections to Claims 5-7 and 10-12

Claims 5-7 and 10-12 were objected to for failing to provide any additional structural limitation to the recitation of their base claim and any intervening claim. First, Applicants note that although the present claims recite a difference in structure, MPEP 2173.05(g) addresses functional limitations and states that "[T]here is 'nothing inherently wrong with defining some part of an invention in functional terms.'" *In re Swinehart*, 439 F.2d, 210, 169 USPQ 226 (CCPA 1971).

Applicants have nonetheless amended claim 6 to recite that the conductive cladding is interference fitted to the support element. Claim 7 now recites that the metal cladding is welded to the support element. Claim 10 recites that the cladding is mechanically or chemically fastened to the support element. Claim 11 recites that the support element is co-extruded with the electrically conductive metal cladding. Claim 12 recites that the conductive metal cladding is roll-formed onto the support element. Applicants respectfully submit that the above recitations define structural limitations, as the physical structure where the items are attached has changed

in some way. An interference fit has a different joining structure than a weld, or a chemically fastened structure, for example.

Accordingly, Applicants respectfully request that the objections to claims 6, 7 and 10-12 be withdrawn.

II. Rejections under 35 U.S.C. §112, first paragraph

Claims 19, 23 and 24 stand rejected under 35 U.S.C. §112, first paragraph for allegedly failing to be enabling to a person of ordinary skill in the art. Claim 19 is alleged to be non-enabling because of a recitation that the cladding is an interference fit. Claim 23 is alleged to be non-enabling because of a recitation that the electrically conductive metal cladding is affixed by chemical or mechanical fastening. No specific reason of rejection is disclosed in the Office Action for claim 24. However, Applicants note that this claim recites that the cladding is affixed to the support member by roll forming. With regard to claims 19 and 23, it is alleged in the Office Action that the specification does not give an example of either the interference fit, the chemical or mechanical fastening, or roll forming are carried out.

However, Applicants respectfully submit that the terms "interference fit", "chemical fastening", "mechanical fastening" or "roll forming" are extremely well-known terms in this field, and that a person of ordinary skill in the art completely understands what is meant by these terms without examples being provided in the specification. In fact, examples of well-known items are not a required in a patent application, so as not to obscure the invention with unnecessary detail. In fact, these terms are so well known that Page 5 of the Office Action lists descriptions (shown in parenthesis) of how a person of ordinary skill in the art would understand the terms: interference fit " (i.e. by heating and cooling), "chemical fastening" (chemical

bonding), "mechanical fastening" (screwing into place) or roll forming (pressure roller). All of the descriptions in parenthesis are embodiments of how a person of ordinary skill in the art would understand the terms. Thus it is respectfully submitted the descriptions in the parenthesis are proof that these terms are well known.

For example, the term "interference fit" is extremely well-known in engineering circles and simply refers to the fastening between two parts which is achieved by friction after the parts are pushed together rather by any other means of fastening. In addition, chemical and mechanical fastening is extremely well-known in engineering circles, as is roll-forming.

Reconsideration and withdrawal of this ground of rejection are respectfully requested.

III. Rejections under 35 U.S.C. §112, second paragraph

Claims 18, 19, 23 and 24 are rejected under 35 U.S.C. §112, second paragraph.

The Office action asserts base claim 16 recites affixing the support to the cathode blade prior to affixing the cladding. However, claim 18 depends from claim 16 and recites affixing the cladding to the support element before connecting the support element to the cathode blade.

It is respectfully submitted claim 18 provides additional limitations not present in claim 16. For example, claim 16 does not specify or require any specific order of attachment. The method steps in claim 16 can be carried out in a number of ways that would all fall within the language of the claim. Thus, the cladding could be affixed to the support element as the last step or it could be affixed to the support element before the support element is connected to the blade. However, claim 18 includes additional limitations by specifying a certain order for attachment. Thus, claim 18 has a different breadth than claim 16.

In addition, claims 19, 23 and 24 are alleged to be vague and indefinite because of the phrases "interference fit", "chemical or mechanical fastening" and "roll forming".

It is respectfully submitted the terms "interference fit", "chemical or mechanical fastening" and "roll forming" are terms of art, as explained above, and thus are definite. For example, claim 19 refers to the interference fit discussed above as a way of attaching two items well-known to a person of ordinary skill in the art. A recitation that the cladding is attached to the support item by an interference fit is readily understood by a person of skill in the art, and a person of ordinary skill in the art requires no further explanation to practice the claimed invention.

Reconsideration and withdrawal of this ground of rejection are respectfully requested.

IV. Rejection under 35 U.S.C. §103(a)

Claims 1-7, 10-17, 20, and 23-26 are rejected under 35 U.S.C. §103(a) as allegedly being obvious in view of the combination of Assenmacher (U.S. 6,569,300) and Perry (U.S. 4,186,074). Applicants respectfully submit traverse this ground of rejection for the reasons indicated below.

The Office Action asserts Assenmacher discloses a steel clad cathode wherein a solid copper hanger bar and a stainless steel mother plate are attached to each other by a receiving groove in the underside of the hanger bar. A stainless steel cover is welded to the mother plate and to the copper bar by respective steel welds and copper welds.

The Office Action admits Assenmacher fails to disclose the copper hanger bar is a corrosion resistant support element, or the support element is made of stainless steel. However, The Office Action alleges Perry discloses a stainless steel hanger bar and a starter sheet also

made of stainless steel, and the edge margin of the starter sheet is welded to the hanger bar and clad with copper. In particular, the Office action asserts "Assenmacher has a copper hanger bar and a stainless steel cladding" and Perry has "a stainless steel hanger and a copper cladding." Thus, it alleges the above claims would have been obvious to a person of ordinary skill in the art at the time of the invention because an artisan would have been motivated to use either material (copper and stainless steel) in either configuration.

It is respectfully submitted that none of the present claims would have been obvious to a person of ordinary skill in the art over the combination of Assenmacher and Perry. Assenmacher and Perry teach away from each other. Thus, there is no suggestion or motivation to combine the teachings of the references, and in fact, to combine the teachings of Assenmacher and Perry would have been counter-intuitive and would not have suggested the present claimed invention.

For example, Assenmacher discusses Perry in its disclosure (see column 3, lines 21-28) and states that cathodes constructed similar to Perry "exacerbate the normal damage caused by exposure to the corrosive atmosphere of the electrolytic tank house, rapidly leading to a build up of high high-resistance corrosion spots that decrease the conductivity of the entire electrode."

Assenmacher also discloses at column 5, lines 49-50 that Perry used a hanger bar which is "encased in an electroplated copper coating." In the present specification, the claimed invention is disclosed as an improvement over electroplated copper coatings.

Assenmacher teaches overcoming the shortcomings of cathodes constructed as disclosed in Perry by welding a solid copper hanger bar to the stainless steel plate and "cladding the solid hanger bar with a cover sealingly attached thereto" (claim 1, step (b)), with the cover preferably being stainless steel. Assenmacher then goes on to state in column 6, lines 51-58, that with

regard to U.S. Patent 4,186,074 to Perry, the Assenmacher invention "eliminates one step from the manufacturing process and avoids the corrosion and reduced time and efficiency problems associated with wear of the cladding during the life of the cathode." It is clear to the artisan that with such disclosure in Assenmacher, the Assenmacher patent teaches away from Perry, and in no way is there motivation to combine the teachings of the references, nor would these contrary teachings render any of the present claims as being obvious.

Applicants respectfully refer to MPEP 2143 as support in that:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the combined prior art references must teach or suggest all the claim limitations.

MPEP 2143 also states that "[T]he teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

With regard to the rejection of the present claims, a person of ordinary skill in the art would not have found any motivation in the combination of references, or within the skill of the art, to modify or combine the teachings of Assenmacher and Perry. As the references teach away from each other and with Assenmacher specifically discussing Perry and its shortcomings, a person of ordinary skill in the art would not have found a reasonable expectation of success by combining their teachings. Third, the combination of Assenmacher and Perry fails to teach or

suggest all of the claim limitations, as they do not specify, alone or in combination, a hanger bar as recited in the present claims.

Reconsideration and withdrawal of this ground of rejection are respectfully requested.

IV. Conclusion

For at least all of the foregoing reasons, all grounds of objection and rejection have been overcome. Thus, a Notice of Allowance is respectfully requested.

Please charge any fee deficiency or credit any overpayment for this Amendment to Deposit Account No. 19-4375.

Respectfully submitted,

Date: January 10, 2007

By: /anthony p venturino/  
Anthony P. Venturino  
Registration No. 31,674

APV/SG  
ATTORNEY DOCKET NO. APV31805

STEVENS, DAVIS, MILLER & MOSHER, L.L.P.  
1615 L STREET, N.W., SUITE 850  
WASHINGTON, D.C. 20036  
TEL. 202-785-0100 / FAX. 202-785-0200